| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/724,025 | 11/28/2000 | David Herring | 3882-3 | 6894 |

| | | | EXAMINER |
|---|---|---|---|
| 29858 | 7590 | 10/12/2006 | DIXON, THOMAS A |

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| ART UNIT | PAPER NUMBER |
|---|---|
| 3628 | |

DATE MAILED: 10/12/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

| | Application No. | Applicant(s) |
| :---: | :--- | :--- |
| **Office Action Summary** | 09/724,025 | HERRING ET AL. |
| | **Examiner** | **Art Unit** | |
| | Thomas A. Dixon | 3628 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1) ☒ Responsive to communication(s) filed on *15 June 2006*.
2a) ☐ This action is **FINAL**.   2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4) ☒ Claim(s) *1-29 and 62-69* is/are pending in the application.
  4a) Of the above claim(s) *30,31 and 70-78* is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) *1-4,6-8,10-17,20-29,62,63 and 65-69* is/are rejected.
7) ☒ Claim(s) *5,9,18,19 and 64* is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.
  Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
  Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  a)☐ All   b)☐ Some * c)☐ None of:
    1.☐ Certified copies of the priority documents have been received.
    2.☐ Certified copies of the priority documents have been received in Application No. _____.
    3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
  * See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
  Paper No(s)/Mail Date *12/8/04*.
4) ☐ Interview Summary (PTO-413)
  Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____ .

# DETAILED ACTION

## *Election/Restrictions*

1.      Applicant's election of group 1 in the reply filed on 6/15/06 is acknowledged.

Claims 30-61, and 70-78 are withdrawn as being non-elected.

Because applicant did not distinctly and specifically point out the supposed errors

in the restriction requirement, the election has been treated as an election without

traverse (MPEP § 818.03(a)).

## *Information Disclosure Statement*

2.      The information disclosure statement filed 12/8/04 has been considered.

## EXAMINER'S AMENDMENT

3.      An examiner's amendment to the record appears below. Should the changes

and/or additions be unacceptable to applicant, an amendment may be filed as provided

by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be

submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview

with representative Ostrow on 27 October 2003.

In the claims:

Claim 62, line 7, change --ser-- to --set--.

## *Claim Rejections - 35 USC § 101*

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of
matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the
conditions and requirements of this title.

4.      Claims 1-29, 62-69 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

For a claimed invention to be statutory, the claimed invention must produce a useful, tangible and concrete result. An invention which is eligible for patenting under 35 U.S.C 101, is in the "useful arts" when it is a machine, manufacture, process or composition of matter, which produces a useful, concrete and tangible result. The fundamental test for patent eligibility is thus to determine whether the claimed invention produces a useful tangible and concrete result. See AT&T v. Excel Communications Inc., 172 F.3d at 1358, 50 USPQ 2d at 1452 and State Street Bank & Trust Co. v. Signature Financial Group, Inc., 149 F.3d at 1373, 47 USPQ 2d at 1601 (Fed. Cir. 1998). The test for practical application as applied by the examiner involves the determination of the following factors.

a)      "useful" – The Supreme Court in Diamond v. Diehr requires that the examiner look at the claimed invention as a whole and compare any asserted utility with the claimed invention to determine whether the asserted  utility is accomplished. Applying utility case law the examiner will not that:

i.      utility need not be expressly recited in the claims, rather it may be inferred.

ii.      if the utility is not asserted in the written description, then it must be well established.

b)     "tangible" – Applying In re Warmerdam, 33 F.3d 1354, 31 UAPQ 2d 1754

Fed. Cir. 1994), the examiner will determine whether there is simply a mathematical

construct claimed, such as a disembodied data structure and method of making it. If so,

the claim involves no more than manipulation of an abstract idea and is, therefore,

nonstatutory under 35 U.S.C 101. In Warmerdam, the abstract idea of a data structure

became capable of producing a useful result when it was fixed in a tangible medium,

which enabled its functionality to be realized.

c)     "concrete" – Another consideration is whether the invention produces a

"concrete" result. Usually, this question arises when a result cannot be assured. An

appropriate rejection under 35 U.S.C 101 should be accompanied by a lack of

enablement rejection, because the invention cannot operate as intended without undue

experimentation.

As per Claims 1,16, 28, 29, 62.
The claims are seen to be non-statutory because they do not produce a tangible
result.

As per Claim 28.
The system is seen to be code per se as it is a software suite as disclosed on
page 18 of the specification.  A system claim is distinguished by its structure and
software must be embodied on a computer readable medium and be executable.

### Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by
another filed in the United States before the invention by the applicant for patent or (2) a patent
granted on an application for patent by another filed in the United States before the invention by the
applicant for patent, except that an international application filed under the treaty defined in section

351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5.      Claims 1-3, 6, 11-16, 20-21, 23- 29, 62, 65, 67-69 are rejected under 35

U.S.C. 102(e) as being anticipated by Ho (6,597,777).

As per Claims 1, 29.
Ho ('777) discloses:
determining a service change time window based at least in part upon a change in service quality between a first working state and a second, non-working state, and upon a change in service usage amount, the service change time window encompassing at least part of a service outage, see column 3, lines 27-32;
retrieving data representing a detected event and a time in which the event occurred, see column 3, line 11-18 and column 4, line 45;
computing a probability that the detected event caused the service change based at least in part on a correlation between the event time and the service change time window, see column 3, lines 20-27.

As per Claim 2, 20, 65.
Ho ('777) further discloses:
determining the service change time window comprises determining a service failure time window based upon the change in service quality and narrowing the service failure time window to the service change time window based upon the service usage amount measured during that service failure time window, see column 3, lines 11-35.

As per Claim 3. 21.
Ho ('777) further discloses:
the service quality is monitored through periodic polling of the service quality, and comprising determining the service failure time window as bounded by a polled point of the first working state and a polled point of the second non-working state, see column 3, lines 27-40.

As per Claim 6.
Ho ('777) further discloses:
storing historical data associating occurrences of prior events with prior service changes, and wherein the probability that the detected event caused the service change comprises computing the probability at least in part based on historical data, see column 3, lines 18-40.

As per Claim 11, 23, 67.
Ho ('777) further discloses:
the service comprises service over a communication network and wherein the detected event comprises a network event, see column 3, lines 9-11.

As per Claim 12, 24, 68.
Ho ('777) further discloses:
the service comprises service provided by an application program and wherein the detected event comprises an application program event, see column 3, lines 11-14.

As per Claim 13, 25, 69.
Ho ('777) further discloses:
the service change is a service outage comprising determining the service change time window as a change in service quality from a first working state to a second, non-working state, see column 3, lines 9-49.

As per Claim 14, 26.
Ho ('777) further discloses:
the service change is a service recovery comprising determining the service change time window as a change in service quality from a second, non-working state to the first, working state, see column 3, lines 9-49.

As per Claim 15, 27.
Ho ('777) further discloses:
determining the service change time window comprises detecting a change in service quality by detecting a step of change in measured usage, see column 3, lines 11-35.

As per Claims 16, 62.
Ho ('777) discloses:
determining a service change time window based at least in part upon a change in service quality between a first working state and a second, non-working state, and upon a change in service usage amount, the service change time window encompassing at least part of a service outage, see column 3, lines 27-32;
detecting occurrences of a set of events within a given time prior to and during the service change time window, each occurrence of an event being associated with a time at which the event occurred, see column 3, line 11-18 and column 4, line 45;
computing a probability that the detected event caused the service change based at least in part on a correlation between the event time and the service change time window, see column 3, lines 20-27.

As per Claim 28.
Ho ('777) discloses:
a service monitor for monitoring quality of service on the network, see column 3, lines 9-11;
a usage meter for measuring usage of a network, see column 3, line 11-18 and column 4, line 45;

an event detector for detecting network events and times at which the network events occur, see column 3, line 11-18 and column 4, line 45;

setting a service change time window based upon data received from the service monitor or usage meter, the service change time window encompassing at least part of an occurrence of a service outage in the network, see column 3, lines 28-39;

a probable cause engine, coupled to receive data from the service monitor, usage meter and the event detector, see column 3, lines 41-44, for:

setting a service change time window based upon data received from the service monitor or usage monitor, the service change time window encompassing at least part of an occurrence of a service outage in the network, see column 3, lines 41-44;

determining which of the network events detected by the event detector is the most likely cause of a service change based at least in part of the relations of the detected network event times to the service change time window, see column 3, lines 41-44.

## *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6.      Claims 4, 7, 8, 10, 22, 66 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Ho (6,597,777) in view of Official Notice.

As per Claim 4.
Ho ('777) does not specifically disclose:
computing the probability comprises computing the probability using at least in part a time weighting function which decreases exponentially with the distance between the event time and the service time window.

Official notice is taken that it is well known that the farther timewise one event is from another event that the less likely it becomes that one event will have had a causal relationship on another event.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use a weighting function which decreases the service time window because the farther timewise one event is from another event that the less likely it becomes that one event will have had a causal relationship on another event.

As per Claim 7.

Ho ('777) further discloses:

storing historical data comprises storing data representing instances in which prior events occurred within prior service change time windows, see column 3, lines 18-40.

Ho ('777) does not specifically disclose:

wherein computing the probability of the detected event as the cause of the service change comprises using at least in part a positive occurrence weighting function which increases the probability of the detected event as the cause of the service change based on instances in the historical data in which a prior event of a type identical to the detected event occurred within a prior service change time window.

Official notice is taken that it is well known that the closer timewise one event is from another event that the more likely it becomes that one event will have had a causal relationship on another event.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use a weighting function which increases the service time window because the closer timewise one event is from another event that the more likely it becomes that one event will have had a causal relationship on another event.

As per Claim 8.

Ho ('777) further discloses:

storing historical data comprises storing data representing instances in which prior events were identified as having caused prior service data changes, and wherein computing the probability that the detected event caused the service change comprises using at least in part a historical weighting function which increases the probability of the detected event as the cause of the service change based on instances in the historical data in which a prior event of a type identical to the detected event was identified as having caused a prior service change.

Official notice is taken that it is well known that the an analogy by definition is an event are compared to historical events to make conclusions a causal relationship of one event on another event.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use a historical weighting function which increases the probability of the detected event as the cause of the service change based on instances in the historical data in which a prior event of a type identical to the detected event was identified as having caused a prior service change the current events because analogies are old and well known.

As per Claim 10, 22, 66.

Ho ('777) does not specifically disclose the total of all computed probabilities is 1.

Official Notice is taken that it is a mathematical law that probability is a number between 0 and 1.

7.      Claims 17, 63 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Ho (6,597,777) in view of St Regis Paper Co. v. Bemis Co, 193 USPQ 8,11; 549 F2d

833 (7th Cir. 1977); In re Harza, 124 USPQ 378, 380; 274 F2d 669(CCPA 1960).

As per Claim 17, 63.
Ho ('777) does not specifically disclose computing the probability distribution for
the set of events comprises computing the probability distribution using a first weighting
function which is the product of two or more weighting functions.
Official Notice is taken that it is old and well known in the probability to use
weighting functions and In re Harza teaches that to make duplicate for multiple effect is
obvious.
Therefore, it would have been obvious to one of ordinary skill in the art at the
time the invention was made to use multiple weighting functions for the benefit of taking
multiple variables into account in a probability distribution.

## Allowable Subject Matter

8.      Claims 5, 9, 18-19, 64 are objected to as being dependent upon a rejected base

claim, but would be allowable if rewritten in independent form including all of the

limitations of the base claim and any intervening claims.

9.      The following is a statement of reasons for the indication of allowable subject

matter:

As per Claim 5, 18, 64.
Ho ('777) does not specifically disclose:
determining whether one or more other events of a type identical to the detected
event occurred and wherein computing the probability using at least in part a false
occurrence weighting function which decreases the probability of the detected event as
the cause of the service change for instances in which the detected event occurred
outside the service change time window.

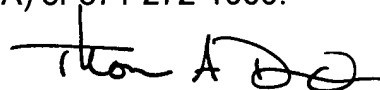As per Claims 9.
Ho ('777) does not specifically disclose:
retrieving data representing a plurality of detected events and corresponding
event times, and wherein computing the probability comprises computing probabilities of
each of the plurality of detected events.

### *Conclusion*

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Thomas A. Dixon whose telephone number is (571)

272-6803. The examiner can normally be reached on Monday - Thursday 6:30 - 4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, John Hayes can be reached on (571) 272-6708. The fax phone number for

the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

USPTO Customer Service Representative or access to the automated information

system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Thomas A. Dixon
Primary Examiner
Art Unit 3628

October 06